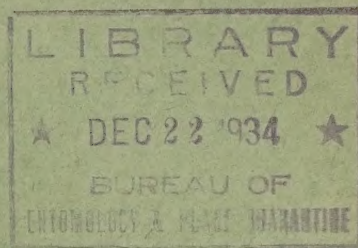


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UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
INSECTICIDE DIVISION

Patent List No. 32



A LIST OF
UNITED STATES PATENTS
Issued from 1917 to 1933 inclusive
relating to
NOZZLE DEVICES FOR DISSOLVING AND MIXING INSECTICIDES
Compiled by
R. C. Roark

Washington, D.C.
November, 1934

A LIST OF UNITED STATES PATENTS ISSUED FROM 1917 to 1933, INCLUSIVE,
RELATING TO NOZZLE DEVICES FOR DISSOLVING AND MIXING INSECTICIDES

Compiled by

R. C. Roark

Insecticide Division, Bureau of Entomology and Plant Quarantine

Thirty-six devices are mentioned in this list.

Every effort has been made by the compiler to make this list of patents complete and no discrimination is intended against any patent mention of which is inadvertently omitted.

The Department of Agriculture assumes no responsibility for the merits or workableness of any of the patents, nor does it recommend any of the inventions listed.

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1,225,713 (May 8, 1917; appl. Jan. 20, 1916). SPRAYING DEVICE. Frederic D. Houghton, Worcester, Mass. - This device is intended for use in spraying cakes or cartridges of lime sulphur or sodium nitrate or other insecticides, fungicides and fertilizers.

1,241,551 (Oct. 2, 1917; appl. June 13, 1916). SPRAYING APPARATUS. Darwin E. Preston and Harry E. Priser, Dayton, Ohio. - A hand sprayer for spraying nicotine or other insecticidal solutions upon plants in hot houses is described.

1,245,626 (Nov. 6, 1917; appl. Aug. 14, 1916). LIQUID-FERTILIZER DISTRIBUTOR. Randolph Shaffer, Tampa, Fla. - This attachment for a garden sprinkler or ordinary garden hose causes the water flowing through to pass around a soluble cake of fertilizer or of poison capable of killing bugs and insects, thus forming a solution of the material.

1,288,824 (Dec. 24, 1918; appl. Oct. 1, 1918). ATTACHMENT FOR PIPES, HOSE, OR FAUCETS. James Burns, Brooklyn, N. Y. - This device can be attached to garden hose to enable the squirting of a chemical mixture for the destruction of insects. Either pure water or a mixture thereof with a substance contained in the device can be discharged through the same nozzle by merely adjusting a valve or cock.

1,297,622 (Mar. 18, 1919; appl. June 16, 1917). SPRAYING APPARATUS. Arthur Whittaker, San Diego, Calif. - This device for attachment to a water pressure line mixes a regulatable amount of a chemical with the water for spraying on trees, vines, vegetables, poultry roosts and the like; or the water pressure may be utilized to spray the pure chemical.

1,315,831 (Sept. 9, 1919; appl. Aug. 15, 1917). SPRAYING DEVICE.
August E. Halbert, Battle Creek, Mich. - A device for use with a hose is described which mixes with the water being sprayed a solution such as an insecticide, fungicide or fertilizer.

1,321,037 (Nov. 4, 1919; appl. Oct. 20, 1917). HYDRAULIC SPRAYER.
William K. Hedrick, Pasadena, Calif. - This device is for use with a garden hose in treating trees and shrubs to keep them free from insects, scale and similar diseases. Chemicals placed in containers within it are dissolved by the water passing through.

1,347,520 (July 27, 1920; appl. Feb. 5, 1919). SPRAYING DEVICE.
Paul Rasch, Chicago, Ill. - This invention relates to a device for mixing and distributing chemical solutions and mixtures, and more particularly to a spraying device as employed in the administration of medicines, disinfectants, insecticides, fungicides, chemical fertilizers, and the like.

1,370,687 (Mar. 8, 1921; appl. Mar. 7, 1919). SPRAYING DEVICE.
John Ferris, Englewood, Colo. - This device is intended to be used with a nozzle of a garden hose and is designed to contain a liquid insecticide for mixing with water issuing therefrom for the purpose of destroying insects on plants, trees and bushes.

1,388,136 (Aug. 16, 1921; appl. May 19, 1920). APPARATUS FOR DISTRIBUTING FERTILIZERS, INSECTICIDES, AND FUNGICIDES. Leon F. Whitney, Brooklyn, N. Y. - National Farm Equipment Co., Inc., New York, N. Y. - This device provides a cartridge of fertilizing, insecticidal or fungicidal material with which water flowing through the device becomes impregnated.

1,405,334 (Jan. 31, 1922; appl. Aug. 2, 1920). INSECT EXTERMINATOR.
Miron W. Rogers, Harwich, Mass. - A sprayer designed for applying either liquid or powdered insecticide upon trees and plants, and which is easy to manipulate and light to carry, is described.

1,430,348 (Sept. 26, 1922; appl. Aug. 1, 1921). SPRAYING ATTACHMENT.
Olaf J. Arness, Minneapolis, Minn. - This attachment for use with a hose mixes a controllable amount of a chemical or other solution with the water for spraying lawns, trees, shrubbery, golf putting greens, etc.

1,430,840 (Oct. 3, 1922; appl. Dec. 27, 1920). SPRAYING TANK.
Francis A. Ostler, Newark, N. J. - This spraying tank may be utilized for spraying vegetation to destroy insects.

1,458,975 (June 19, 1923; appl. Sept. 24, 1920). MIXING APPARATUS.
William Clauson, Everett, Mass. - Friendly Service Co., Boston, Mass. - This device can be used for mixing solution for spraying trees.

1,469,065 (Sept. 25, 1923; appl. June 14, 1922). FERTILIZER-SPRAYING DEVICE. Harry J. D'Arcy, Los Angeles, Calif. - An object of this invention is to provide a device with a removable magazine so that a composition cartridge of concentrated plant food, disinfectant or cleaner may be placed therein for spraying lawns, trees, effecting the killing of germs or removing growth or the like, and means for automatically feeding the cartridge to the water.

1,473,025 (Nov. 6, 1923; appl. May 31, 1921). SPRAYER. Charles Erickson, Minneapolis, Minn. - This device is designed to commingle solutions of various kinds with a stream of water discharged from a hose or pipe. The solution may be a nitrate solution or it may be an insecticide or germicide to be sprayed upon trees or growing vegetation.

1,667,683 (Apr. 24, 1928; appl. Dec. 1, 1924). APPARATUS FOR CLEANING AND DISINFECTING. Alfred H. Thompson and Russell F. Thompson, Los Angeles, Calif. - This spraying apparatus can be operated by steam or compressed air and hot water can be used if desired. It is applicable in disinfecting and destroying vegetable and animal life, for cleaning and disinfecting rugs, furniture, walls, carpets, etc., for destroying fungus growth in swimming pools and drinking fountains, and for destroying bugs, roaches, flies, and other vermin.

1,687,085 (Oct. 9, 1928; appl. Sept. 22, 1926). SPRAYING APPARATUS. Alva M. Dow, Braintree, Mass. - One-half to Robert I. Johns, Brooklyn, N. Y. - This device, which is intended for attachment to a source of water or liquid supply, has an inner casing in which liquid chemicals, powders or other materials can be placed for injection into or mixing with the flowing stream or spray. It can be utilized for spraying or treating animals, trees or shrubs with insecticides.

1,715,140 (May 28, 1929; appl. Feb. 9, 1925). SPRAYING DISTRIBUTOR. Louis L. Martin, Toronto, Ontario, Canada. - This invention accomplishes the thorough and uniform mixture of a measured quantity of material with a flowing fluid, thereby effecting a uniform distribution of the material over a desired area, particularly distributing fertilizers or an insecticide material over large areas in small quantities and in such a manner as to obviate injury to the plant life.

1,748,248 (Feb. 25, 1930; appl. Jan. 8, 1925). METHOD AND APPARATUS FOR CREATING COLLOIDAL ATOMIZATIONS. John E. Shepherd, Charlottesville, Va. - National Cold Steam Co., Charlottesville, Va. - Liquid is atomized in this device by the action of steam, producing an impalpably fine mist of true colloidal nature. This is of advantage in spraying fruit trees in the blossoming stage since there is no danger of injuring the calyx of the flower by the impact of globules of spray.

1,754,710 (Apr. 15, 1930; appl. Apr. 23, 1928). HYDRAULIC SPRAYER. John D. Davenport, Laurel Canyon, Calif. - This invention provides a light, portable hydraulic mixer and sprayer for liquids such as germicides, disinfectants and the like for spraying trees, plants, live stock, poultry or other objects.

1,769,428 (July 1, 1930; appl. Jan. 10, 1928). SPRAYING DEVICE. Francis L. Gatchet, Seattle, Wash., - F. L. Gatchet, Inc., Seattle, Wash. - This spray nozzle and container for attachment to an ordinary garden hose provides means for dissolving and spraying commercial fertilizer and insect poison.

1,781,188 (Nov. 11, 1930; appl. Aug. 1, 1929). TREATING MATERIAL DISPERSION. James R. Neilson, Toledo, Ohio. - One-half to Earl M. Morley, Delta, Ohio. - This device for incorporation in insecticide guns for direct pressure connection provides means for holding a body of insecticidal material the surface of which remains approximately constant as it dissolves away, thus furnishing a uniform strength of spray during its life. Suitable mixtures for use in the device are: (1) 1/2 oz. nicotine oil, 3/4 oz. brown sugar, 3/4 oz. acacia and 1/4 oz. water; (2) 3/4 oz. arsenate of lead, 3/4 oz. brown sugar, 1/4 oz. acacia and 1/2 oz. water.

1,806,025 (May 19, 1931; appl. Dec. 8, 1927). DEVICE FOR DISTRIBUTING FERTILIZER AND THE LIKE. Harry T. Seaman, Rochester, N. Y. - This device is adapted for efficiently distributing soluble fertilizers, insecticides and other chemicals in pulverized or other forms, and is conveniently applied to the ordinary garden hose for spraying purposes.

1,814,572 (July 14, 1931; appl. Sept. 6, 1927; renewed Dec. 1, 1930). FERTILIZER DISPENSING DEVICE. Randolph Shaffer, Atlanta, Ga. - This device for use in connection with the ordinary garden hose or lawn watering hose is adapted for dispensing fertilizer, poisons, insecticides or like soluble materials.

1,814,573 (July 14, 1931; appl. Feb. 18, 1928). FERTILIZER DISPENSING DEVICE. Randolph Shaffer, Evanston, Ill. - This device for use with an ordinary garden hose provides means for dissolving in the water fertilizer, poisons, insecticides, fire extinguishing chemicals or other water-soluble materials.

1,825,131 (Sept. 29, 1931; appl. Sept. 1, 1925). POWER UNIT AND METHOD OF CREATING ENERGY. John E. Shepherd, Charlottesville, Va., - National Cold Steam Co., Charlottesville, Va. - The exhaust gas from an internal combustion engine is utilized in spraying with a mixture of steam and a liquid such as an insecticide.

1,827,384 (Oct. 13, 1931; appl. June 18, 1930). SPRAY NOZZLE DISSOLVER. John F. Corbett, Long Beach, Calif. - A novel device for mixing appropriate chemicals with water for spraying plants as it is sprayed through the final outlet nozzle of a hose is described. The chemicals are mixed with a soap substance.

1,827,502 (Oct. 13, 1931; appl. June 18, 1929). COMBINED VALVE AND MIXING DEVICE. Maurice Alland, Atlantic City, N. J. - The container of this mixing device, which holds a liquid or soluble solid, can be readily inserted into or withdrawn from the direct flow of liquid. This device can be used in spraying trees, plants, vines and the like and provides means whereby one can readily, at will, switch from a chemical designed to kill sap-sucking insects to one effective against leaf-eating insects.

1,847,869 (Mar. 1, 1932; appl. Sept. 8, 1928). SPRAYING DEVICE. Arthur C. Fawcett, Berea, Ohio. - This apparatus for applying insecticide and fertilizers in solution to plants can be quickly attached to and detached from hose devices of various types and sizes without disturbing the hose assembly or nozzle.

1,875,411 (Sept. 6, 1932; appl. Sept. 12, 1930). SPRAY GUN.

Anton Beebe, El Cerrito, Calif. - This spray gun may be attached to ordinary garden hose, the liquid supply being obtained from any pressure water supply, the liquid insecticide being formed in a special compartment formed in the handle in which an insecticide in solid form is placed, the water being supplied in swirling motion, the liquid insecticide being projected from a restricted nozzle in the form of a fine spray.

1,866,620 (July 12, 1932; appl. Feb. 28, 1930). SPRAYER. Mollie

D. Chesnut, Des Moines, Iowa. - This sprayer attachment for use with a garden hose or air compression liquid tank can be regulated to adjust the amount of insecticide which it mixes with the water sprayed. It can be used for mixing free oils, e. g. oil of tar and other resinous liquids, with the water for spraying to kill slugs, spiders, aphids, caterpillars, tree ants, and the like which infest shrubbery, roses, trees and similar plant life.

1,873,817 (Aug. 23, 1932; appl. Aug. 25, 1930). SPRAYER. Charles

F. Buddenhagen, Providence, R. I. - Cletus G. Buddenhagen, Atlantic, Mass. - By means of this device insecticide may be mixed with water delivered by a garden hose.

1,904,428 (Apr. 18, 1933; appl. Aug. 22, 1931). SPRAYING DEVICE.

Hans J. P. Enemark, Stapleton, N. Y. - The primary object of this invention is to provide a spraying device especially designed for attachment to garden hose and constructed to cause water to flow through different channels therein and in contact with chemicals or fertilizers contained in the separate channels so that the water outletting from the spray device is impregnated with a particular chemical or fertilizer for a special use such as in the spraying of rose bushes and the like with a nicotine solution, the spraying of fruit trees with a solution containing arsenate of lead or a solution for a garden containing Paris green as well as a fertilizer solution for general purposes.

1,920,721 (Aug. 1, 1933; appl. Mar. 24, 1930). SPRAYING DEVICE.

Leslie L. Tirrell, Washington, D. C. - A device wherein a regulated supply of insecticide or other liquid may be supplied to a liquid, for instance water, passing through the device under pressure is described.

1,936,275 (Nov. 21, 1933; appl. Nov. 13, 1931). INSECTICIDE AND

FERTILIZER SPRINKLER NOZZLE. Harry W. Siebert, New York, N. Y. - Garden Insecticide Corp., New York, N. Y. - This invention relates to fluid or water applicators or distributors, such as those of the horticultural type, by which materials, e. g. soluble insecticides, fungicides or the like, are intermixed with the liquid during or before its application, and has particular reference to a novel construction for effecting the intermixing operation.

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